UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
2676	12

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)
Office Action Summary	10/077,694		GRINSTEIN ET AL.
	Examiner		**Art Unit**
	Greg Cunningham		2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-57* is/are rejected.

7)☒ Claim(s) *5,12,19-27,32,39, and 46-54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications of application filed 2/15/2004.

2.   The disposition of the claims is as follows: claims 1-57 are pending in the application.

Claims 1, 28 and 55 are independent claims.

3.   The group and/or Art Unit location of your application has changed. To aid in the

correlation of any papers for this application, all further correspondence should be directed to

Group Art Unit 2676 (effective 9/04). Please be sure to use the most current art unit number on

all correspondence to help us route your case and respond to you in a timely fashion.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-4, 6, 28-31, 33 and 55-57 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Koski et al., (US Patent 6,571,251 B1) hereinafter Koski, and further in view

of Lee et al., (US Publication Number 2001/0029506 A1), hereinafter Lee.

A.   Koski discloses claim 1, "A method of data analysis comprising, employing data

comprising, a plurality of records, each of said records [Lee - col. 3, lns. 20-24] having an

associated plurality of attributes [Lee – col. 3, lns. 20-42], said plurality of records being

divisible into at least two categories [Lee – col. 3, lns. 24-31], providing a multidimensional

array [Lee - col. 3, lns. 20-24] having intersecting first and second axes [Lee – Fig. 2], assigning

each of said attributes as a one dimensional vector aligned along said first axis [Lee – Fig. 2,

wherein rows correspond to one dimensional vector aligned along said first axis], assigning each

of said records as a one dimensional vector aligned along said second axis [Lee – Fig. 2, wherein

columns correspond to one dimensional vector aligned along said second axis], displaying a

graphical indication of at least one of an occurrence and a value of each said attribute for each

said record at an intersection of each said record vector with each said attribute vector, and

manipulating at least one of said record vectors and said attribute vectors to produce a graphical

pattern representative of said at least two categories" [as detailed]. However Koski does not

appear to disclose "manipulating at least one of said record vectors and said attribute vectors to

produce a graphical pattern representative of said at least two categories", but Lee does in col.

11, lns. 20-28, at [A computer executed method comprising the steps of mapping data

representing two or more categories by dividing each of the categories divided into subcategories

of ordered levels of specificity; dividing each of the ordered levels of specificity into a grouping

of subcategories of the same levels of specificity; and displaying the subcategories and the

grouping of subcatgories in a visual, geometric pattern.] Whereby the [ordered levels of

specificity] correspond to plurality of records and/or plurality of attributes and/or subcategories

of the same levels of specificity and wherein [geometric pattern] corresponds to "graphical

pattern" and [dividing] corresponds to "manipulating".

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee, and motivated to

combine the teachings because it would provide an improved system and method for creating a visual map as revealed in [para. 0018].

B.   Per independent claims 28 and 55, these are directed to a system and program, respectively, for performing the method of independent claim 1, and therefore are rejected to independent claim 1.

C.   Per claim 2, "The method of claim 1, wherein said manipulating step comprises transposing vectors in at least one of a pair of said record vectors and a pair of said attribute vectors to produce said graphical pattern representative of said at least two categories", Official notice is taken that the art is replete with transposing vectors to produce graphical pattern representatives of any number of categories.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the multidimensional array disclosed by Koski and the grouping of subcatgories in a visual, geometric pattern disclosed by Lee in combination with Official notice, and motivated to combine the teachings because it would provide an improved system and method for creating a visual map as revealed in [para. 0018].

D.   Per dependent claims 29 and 56, these are directed to a system and program, respectively, for performing the method of dependent claim 2, and therefore are rejected to dependent claim 2.

E.   Per claim 6, "The method of claim 2 further comprising, repeating said transposing step until said graphical pattern is produced", Official notice is taken that the art is replete with recursively transposing vectors to produce graphical pattern representatives of any number of categories.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski and the grouping of

subcatgories in a visual, geometric pattern disclosed by Lee in combination with Official notice,

and motivated to combine the teachings because it would provide an improved system and

method for creating a visual map as revealed in [para. 0018].

F.   Per dependent claim 33, this is directed to a system for performing the method of

dependent claim 6, and therefore is rejected to dependent claim 6.

G.   Claim 3, "The method of claim 1 further comprising, determining, from said graphical

pattern, a result-effective subset of attributes that is sufficient to divide said records into said at

least two categories" is disclosed by Koski and Lee, supra, for claim 1. Wherein [displaying the

subcategories and the grouping of subcatgories in a visual, geometric pattern] corresponds to "a

result-effective subset of attributes that is sufficient to divide said records into said at least two

categories".

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee, and motivated to

combine the teachings because it would provide an improved system and method for creating a

visual map as revealed in [para. 0018].

H.   Per dependent claims 30 and 57, these are directed to a system and program, respectively,

for performing the method of dependent claim 3, and therefore are rejected to dependent claim 3.

I.   Claim 4, "The method of claim 3, wherein said result-effective subset is a minimum

subset" is disclosed by Koski and Lee, supra, for claim 3. Wherein Lee's [two or more

categories] corresponds minimally to "at least two categories".

J.   Per dependent claim 31, this is directed to a system for performing the method of

dependent claim 4, and therefore is rejected to dependent claim 4.

6.   Claims 7, 8, 10, 34, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Koski et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US

Publication Number 2001/0029506 A1), hereinafter Lee, and further in view of MacInnis et al.,

(US Patent 6,189,064 B1), hereinafter MacInnis.

A.   Claim 7, "The method of claim 1, wherein said graphical indication has at least two

states" is disclosed by Koski and Lee, supra, for claim 1. However Koski and Lee do not appear

to disclose "wherein said graphical indication has at least two states", but MacInnis does in col.

31, lns. 15-24.

        Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with

graphic elements with two states disclosed by MacInnis, and motivated to combine the teachings

because it would provide an improved system and method for creating a visual map as revealed

in [para. 0018].

B.   Per dependent claim 34, this is directed to a system for performing the method of

dependent claim 7, and therefore is rejected to dependent claim 7.

C.   Claim 8, "The method of claim 7, wherein each of said states is represented by a color" is

disclosed by Koski, Lee and MacInnis, supra, for claim 7. Wherein [foreground and background

colors] correspond to "color".

D.   Per dependent claim 35, this is directed to a system for performing the method of

dependent claim 8, and therefore is rejected to dependent claim 8.

E.   Per claim 10, "The method of claim 7, wherein each of said states is represented by an

integer" is disclosed by Koski, Lee and MacInnis, supra, for claim 7. Although Koski, Lee and

MacInnis do not appear to disclose "wherein each of said states is represented by an integer",

Official notice is taken that the art is replete with binary states representing integer "0" and "1".

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski and the grouping of

subcatgories in a visual, geometric pattern disclosed by Lee in combination with Official notice,

and motivated to combine the teachings because it would provide an improved system and

method for creating a visual map as revealed in [para. 0018].

F.   Per dependent claim 37, this is directed to a system for performing the method of

dependent claim 10, and therefore is rejected to dependent claim 10.

7.   Claims 9 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et

al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication

Number 2001/0029506 A1), hereinafter Lee, further in view of MacInnis et al., (US Patent

6,189,064 B1), hereinafter MacInnis, and further in view of Imanishi (US Patent 5,014,129).

A.   Claim 9, "The method of claim 7, wherein each of said states is represented by a symbol"

is disclosed by Koski, Lee, and MacInnis, supra, for claim 7. However Koski, Lee, and MacInnis

do not appear to disclose "wherein each of said states is represented by a symbol", but Imanishi

does in col. 1, lns. 36-50.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with

graphic elements with two states disclosed by MacInnis and in connection with symbol disclosed

by Imanishi, and motivated to combine the teachings because it would provide an improved

system and method for creating a visual map as revealed in [para. 0018].

B.   Per dependent claim 36, this is directed to a system for performing the method of

dependent claim 9, and therefore is rejected to dependent claim 9.

8.   Claims 11 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski

et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication

Number 2001/0029506 A1), hereinafter Lee, further in view of MacInnis et al., (US Patent

6,189,064 B1), hereinafter MacInnis, and further in view of Grunewald et al., (US Patent

4,616,220), hereinafter Grunewald.

A.   Claim 11, "The method of claim 7, wherein said each of said states is represented by a

shade of gray" is disclosed by Koski, Lee, and MacInnis, supra, for claim 7. However Koski,

Lee, and MacInnis do not appear to disclose "wherein said each of said states is represented by a

shade of gray", but Grunewald does in col. 2, lns. 17-23.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with

graphic elements with two states disclosed by MacInnis and in connection with symbol disclosed

by Imanishi, and motivated to combine the teachings because it would provide an improved

system and method for creating a visual map as revealed in [para. 0018].

B.   Per dependent claim 38 this is directed to a system for performing the method of

dependent claim 11, and therefore is rejected to dependent claim 11.

9.   Claims 13 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski

et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication

Number 2001/0029506 A1), hereinafter Lee, and further in view of Barton et al., (US Patent

6,114,699 A), hereinafter Barton.

A.   Claim 13, "The method of claim 1, wherein said manipulating step comprises employing

a principal uncorrelated record set algorithm" is disclosed by Koski and Lee, supra, for claim 1.

However Koski and Lee do not appear to disclose "wherein said manipulating step comprises

employing a principal uncorrelated record set algorithm", but Barton does in col. 5, lns. 43-58.

        Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with

Principal Component Analysis (PCA) for multi-dimensional data using uncorrelated variables

disclosed by Barton, and motivated to combine the teachings because it would identify the

underlying features of large data sets, and attempts to describe the variation in multi-dimensional

data by means of a small number of uncorrelated variables as revealed in [col. 5, lns. 45-47].

B.   Per dependent claim 40, this is directed to a system for performing the method of

dependent claim 13, and therefore is rejected to dependent claim 13.

10.   Claims 14 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski

et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication

Number 2001/0029506 A1), hereinafter Lee, and further in view of May et al., (US Patent

5,544,354 A), hereinafter May.

A.   Claim 14, "The method of claim 1, wherein said records represent cells and said

attributes are properties of said cells" is disclosed by Koski and Lee, supra, for claim 1. However

Koski and Lee do not appear to disclose "wherein said manipulating step comprises employing a

principal uncorrelated record set algorithm", but May does in col. 9, lns. 50-64.

Therefore it would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the multidimensional array disclosed by Koski in combination with

grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with record

cells disclosed by May, and motivated to combine the teachings because it would be visually

identified in the matrix by a photographic image as revealed in [col. 9, lns. 62-64].

B.   Per dependent claim 41, this is directed to a system for performing the method of

dependent claim 14, and therefore is rejected to dependent claim 14.

11.   Claims 15 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski

et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication

Number 2001/0029506 A1), hereinafter Lee, and further in view of Ganguly et al., (US Patent 5,721,896 A), hereinafter Ganguly.

A.   Claim 15, "The method of claim 1, wherein said records represent mammals and said attributes are characteristics of said mammals" is disclosed by Koski and Lee, supra, for claim 1. However Koski and Lee do not appear to disclose "wherein said records represent mammals and said attributes are characteristics of said mammals", but Ganguly does in col. 4, lns. 38-65. Wherein Man and woman correspond to mammals and their sport affinities correspond to their preference characteristics.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the multidimensional array disclosed by Koski in combination with grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with human preference characteristics disclosed by Ganguly, and motivated to combine the teachings because it would graph the categorized data as revealed in [col. 4, lns. 38-44].

B.   Per dependent claim 42, this is directed to a system for performing the method of dependent claim 15, and therefore is rejected to dependent claim 15.

12.   Claims 16-18 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koski et al., (US Patent 6,571,251 B1) hereinafter Koski, further in view of Lee et al., (US Publication Number 2001/0029506 A1), hereinafter Lee, and further in view of Kallioniemi et al., (US Patent Publication 2003/0215936 A1), hereinafter Kallioniemi.

A.   Claim 16, "The method of claim 1, wherein said records represent a sample from a mammal and said attributes are biological markers" is disclosed by Koski and Lee, supra, for

claim 1. However Koski and Lee do not appear to disclose "wherein said records represent a sample from a mammal and said attributes are biological markers", but Kallioniemi does in abstract at "The results may be compared to determine if there are correlations or discrepancies between the results of different biological analyses at each assigned location, and also compared to clinical information about the human patient from which the tissue was obtained" and in [para. 0043, 0056]. Wherein human correspond to mammals and [coordinates of particular areas (donor blocks, arrays) correspond to "represent sample records".

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the multidimensional array disclosed by Koski in combination with grouping of subcatgories in a visual, geometric pattern disclosed by Lee and coupled with human coordinates of particular areas (donor blocks, arrays) disclosed by Kallioniemi, and motivated to combine the teachings because it may be compared to clinical information about the human patient from which the tissue was obtained as revealed in [abstract].

B.   Claim 17, "The method of claim 16, wherein said biological marker is a gene product" is disclosed by Koski, Lee and Kallioniemi supra, for claim 16. Furthermore, Kallioniemi, discloses "wherein said biological marker is a gene product" in [para. 0008, 0043, and 0053].

C.   Claim 18, "The method of claim 16, wherein said biological marker is at least one of a protein and an mRNA" is disclosed by Koski, Lee and Kallioniemi supra, for claim 16. Furthermore, Kallioniemi, discloses "wherein said biological marker is at least one of a protein and an mRNA" in [para. 0005, 0078, 0082, 0096, 0134 and 0136].

D.   Per dependent claims 43-45, these are directed to a system for performing the method of

dependent claims 16-18, and therefore are rejected to dependent claims 16-18.

Allowable Subject Matter

13.   Claims 5, 12, 19-27, 32, 39, and 46-54 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Responses

14.   Responses to this action should be mailed to: Commissioner of Patents and Trademarks,

Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9306 may be used for

formal communications.

        Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA., Sixth Floor (Receptionist).

Inquiries

15.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Greg Cunningham whose telephone number is (703) 308-6109.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Bella, can be reached on (703) 308-6829.

        Any response to this action should be mailed to:

                Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 Customer Service Office whose telephone

number is (703) 306-0377.

J.F. Cunningham, Examiner

gfc

September 29, 2004

Matthew C. Bella

**MATTHEW C. BELLA
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TECHNOLOGY CENTER 2600**